

What is claimed is:

1. Method for depositing in particular crystalline layers on in particular crystalline substrates in a process chamber (1) of a reactor housing with a water-cooled wall (2), the base (3) of the process chamber (1) being heated, and one or more reaction gases being introduced centrally into the process chamber (1) as process gas, together with hydrogen as carrier gas, and being discharged through a gas outlet ring (5) which surrounds the process chamber (1), a purge gas (7) flowing between reactor cover (6) and processing chamber ceiling (4), which purge gas (7), together with a purge gas (8) which purges the space (12) between reactor wall (2) and gas outlet ring (5), is passed through a gap (9) between reactor ceiling (4) and the gas outlet ring (5), which can be lowered to allow loading of the process chamber (1), into the outer region (1') of the process chamber (1), in order to be sucked into the gas outlet ring (54) together with the process gas (10) through openings (11), the gas which purges the space (12) between reactor wall (2) and gas outlet ring (5) being nitrogen or a mixture of hydrogen and nitrogen.

2. Device for depositing in particular crystalline layers on in particular crystalline substrates in a process chamber (1) of a reactor housing with a water-cooled wall (2), the base (3) of the process chamber (1) being heated, and one or more reaction gases being introduced centrally into the process chamber (1) as process gas, together with hydrogen as carrier gas, and being discharged through a gas outlet ring (5) which surrounds the process chamber (1), a purge gas (7) flowing between reactor cover (6) and processing chamber ceiling (4), which purge gas (7), together with a purge gas (8) which purges the space (12) between reactor wall (2) and gas outlet ring (5), is passed through a gap (9) between reactor ceiling (4) and the gas outlet ring (5), which can be lowered to allow loading of the process chamber (1), into the outer region (1') of the process chamber (1), in order to pass into the gas outlet ring (54) together with the process gas (10) through openings (11), the gas which purges the

space (12) between reactor wall (2) and gas outlet ring (5) being nitrogen or a mixture of hydrogen and nitrogen.

3. Method according to Claim 1 or device according to Claim 2 or in particular according thereto, characterized in that the gas (7) which purges the gap (13) between reactor cover (6) and process chamber ceiling (4) is likewise nitrogen or a mixture of hydrogen and nitrogen.